

PATENT COOPERATION TREATY

From the INTERNATIONAL SEARCHING AUTHORITY

PCT

NOTIFICATION OF TRANSMITTAL OF
THE INTERNATIONAL SEARCH REPORT AND
THE WRITTEN OPINION OF THE INTERNATIONAL
SEARCHING AUTHORITY, OR THE DECLARATION

To:

F.R. KELLY & CO
Attn: Conor Boyce
27 Clyde Road
Ballsbridge
Dublin 4
IRELAND

(PCT Rule 44.1)

Date of mailing
(day/month/year)

05/12/2006

Applicant's or agent's file reference

P76254PC00

FOR FURTHER ACTION

See paragraphs 1 and 4 below

International application No

PCT/EP2006/008358

International filing date
(day/month/year)

25/08/2006

Applicant

FOTONATION VISION LIMITED

- 1 ☒ The applicant is hereby notified that the international search report and the written opinion of the International Searching Authority have been established and are transmitted herewith

Filing of amendments and statement under Article 19:

The applicant is entitled, if he so wishes, to amend the claims of the International Application (see Rule 46):

When? The time limit for filing such amendments is normally two months from the date of transmittal of the International Search Report

Where? Directly to the International Bureau of WIPO, 34 chemin des Colombettes
1211 Geneva 20, Switzerland. Facsimile No.: (41-22) 338 82 70

For more detailed instructions, see the notes on the accompanying sheet

- 2 ☐ The applicant is hereby notified that no international search report will be established and that the declaration under Article 17(2)(a) to that effect and the written opinion of the International Searching Authority are transmitted herewith

- 3 ☐ With regard to the protest against payment of (an) additional fee(s) under Rule 40.2, the applicant is notified that:

- ☐ the protest together with the decision thereon has been transmitted to the International Bureau together with the applicant's request to forward the texts of both the protest and the decision thereon to the designated Offices
☐ no decision has been made yet on the protest; the applicant will be notified as soon as a decision is made

4 Reminders

Shortly after the expiration of 18 months from the priority date, the international application will be published by the International Bureau. If the applicant wishes to avoid or postpone publication, a notice of withdrawal of the international application, or of the priority claim, must reach the International Bureau as provided in Rules 90bis 1 and 90bis 3, respectively, before the completion of the technical preparations for international publication

The applicant may submit comments on an informal basis on the written opinion of the International Searching Authority to the International Bureau. The International Bureau will send a copy of such comments to all designated Offices unless an international preliminary examination report has been or is to be established. These comments would also be made available to the public but not before the expiration of 30 months from the priority date

Within 19 months from the priority date, but only in respect of some designated Offices, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase until 30 months from the priority date (in some Offices even later); otherwise, the applicant must, within 20 months from the priority date, perform the prescribed acts for entry into the national phase before those designated Offices

In respect of other designated Offices, the time limit of 30 months (or later) will apply even if no demand is filed within 19 months

See the Annex to Form PCT/IB/301 and, for details about the applicable time limits, Office by Office, see the PCT Applicant's Guide, Volume II, National Chapters and the WIPO Internet site

RECEIVED

Name and mailing address of the International Searching Authority

 European Patent Office, P.B. 5818 Patentlaan 2
NL-2280 HV Rijswijk
Tel (+31-70) 340-2040, Tx 31 651 epo nl.
Fax: (+31-70) 340-3016

Authorized officer

Dana Schalinat
Date: 04 DEC 2006
COMPUTER GENERATED

NOTES TO FORM PCT/ISA/220

These Notes are intended to give the basic instructions concerning the filing of amendments under article 19. The Notes are based on the requirements of the Patent Cooperation Treaty, the Regulations and the Administrative Instructions under that Treaty. In case of discrepancy between these Notes and those requirements, the latter are applicable. For more detailed information, see also the *PCT Applicant's Guide*, a publication of WIPO.

In these Notes, "Article", "Rule", and "Section" refer to the provisions of the PCT, the PCT Regulations and the PCT Administrative Instructions, respectively.

INSTRUCTIONS CONCERNING AMENDMENTS UNDER ARTICLE 19

The applicant has, after having received the international search report and the written opinion of the International Searching Authority, one opportunity to amend the claims of the international application. It should however be emphasized that, since all parts of the international application (claims, description and drawings) may be amended during the international preliminary examination procedure, there is usually no need to file amendments of the claims under Article 19 except where, e.g. the applicant wants the latter to be published for the purposes of provisional protection or has another reason for amending the claims before international publication. Furthermore, it should be emphasized that provisional protection is available in some States only (see *PCT Applicant's Guide*, Volume I/A, Annexes B1 and B2).

The attention of the applicant is drawn to the fact that amendments to the claims under Article 19 are not allowed where the International Searching Authority has declared, under Article 17(2), that no international search report would be established (see *PCT Applicant's Guide*, Volume I/A, paragraph 296).

What parts of the international application may be amended?

Under Article 19, only the claims may be amended.

During the international phase, the claims may also be amended (or further amended) under Article 34 before the International Preliminary Examining Authority. The description and drawings may only be amended under Article 34 before the International Examining Authority.

Upon entry into the national phase, all parts of the international application may be amended under Article 28 or, where applicable, Article 41.

When?

Within 2 months from the date of transmittal of the international search report or 16 months from the priority date, whichever time limit expires later. It should be noted, however, that the amendments will be considered as having been received on time if they are received by the International Bureau after the expiration of the applicable time limit but before the completion of the technical preparations for international publication (Rule 46.1).

Where not to file the amendments?

The amendments may only be filed with the International Bureau and not with the receiving Office or the International Searching Authority (Rule 46.2).

Where a demand for international preliminary examination has been/is filed, see below.

How?

Either by cancelling one or more entire claims, by adding one or more new claims or by amending the text of one or more of the claims as filed.

A replacement sheet must be submitted for each sheet of the claims which, on account of an amendment or amendments, differs from the sheet originally filed.

All the claims appearing on a replacement sheet must be numbered in Arabic numerals. Where a claim is cancelled, no renumbering of the other claims is required. In all cases where claims are renumbered, they must be renumbered consecutively (Section 205(b)).

The amendments must be made in the language in which the international application is to be published.

What documents must/may accompany the amendments?

Letter (Section 205(b)):

The amendments must be submitted with a letter.

The letter will not be published with the international application and the amended claims. It should not be confused with the "Statement under Article 19(1)" (see below, under "Statement under Article 19(1)").

The letter must be in English or French, at the choice of the applicant. However, if the language of the international application is English, the letter must be in English; if the language of the international application is French, the letter must be in French.

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference P76254PC00	FOR FURTHER ACTION see Form PCT/ISA/220 as well as, where applicable, item 5 below	
International application No PCT/EP2006/008358	International filing date (day/month/year) 25/08/2006	(Earliest) Priority Date (day/month/year) 18/11/2005
Applicant FOTONATION VISION LIMITED		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 4 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

- a. With regard to the language, the International search was carried out on the basis of:

☒ the international application in the language in which it was filed
☐ a translation of the international application into _____, which is the language of a translation furnished for the purposes of international search (Rules 12 3(a) and 23 1(b))

- b. ☐ With regard to any nucleotide and/or amino acid sequence disclosed in the international application see Box No. I

2. ☐ Certain claims were found unsearchable (See Box No. II)

3. ☐ Unity of invention is lacking (see Box No. III)

4. With regard to the title,

☒ the text is approved as submitted by the applicant
☐ the text has been established by this Authority to read as follows:

5. With regard to the abstract,

☒ the text is approved as submitted by the applicant
☐ the text has been established, according to Rule 38 2(b), by this Authority as it appears in Box No. IV. The applicant may within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the drawings,

- a. the figure of the drawings to be published with the abstract is Figure No. 1b
☒ as suggested by the applicant
☐ as selected by this Authority, because the applicant failed to suggest a figure
☐ as selected by this Authority, because this figure better characterizes the invention
- b. ☐ none of the figures is to be published with the abstract

INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2006/008358A. CLASSIFICATION OF SUBJECT MATTER
INV. G06T7/00 G06T5/10

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

G06T

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and where practical search terms used)

EPO-Internal, WPI Data, INSPEC, COMPENDEX

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication where appropriate of the relevant passages	Relevant to claim No
X	US 2005/041121 A1 (STEINBERG ERAN [US] ET AL) 24 February 2005 (2005-02-24) cited in the application abstract paragraphs [0006] - [0014], [0029] - [0031], [0059], [0070], [0072]; figure 1 ----- -/-	1-3, 11-15, 18-29, 31-46, 48-56, 58

☒ Further documents are listed in the continuation of Box C☒ See patent family annex

* Special categories of cited documents:

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *I* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
- *G* document member of the same patent family

Date of the actual completion of the international search

28 November 2006

Date of mailing of the international search report

05/12/2006

Name and mailing address of the ISA/
European Patent Office: P B 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel (+31-70) 340-2040, Tx 31 651 epo nl
Fax, (+31-70) 340-3016

Authorized officer

Eckert, Lars

INTERNATIONAL SEARCH REPORT

International application No

PCT/EP2006/008358

C(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category	Citation of document with indication where appropriate, of the relevant passages	Relevant to claim No
A	<p>SMOLKA B ET AL: "Towards automatic redeye effect removal" PATTERN RECOGNITION LETTERS, NORTH-HOLLAND PUBL. AMSTERDAM, NL, vol. 24, no. 11, July 2003 (2003-07), pages 1767-1785, XP004416063 ISSN: 0167-8655 sections "1. Introduction", "2.1.2. Skin segmentation in the HSV color space", "2.2. Morphological cleaning process", "2.3. Gray-scale conversion", "2.5. Redeye color replacement" section "3. Experimentation results"</p> <p>-----</p>	1-58
A	<p>CORCORAN P ET AL: "AUTOMATED IN-CAMERA DETECTION OF FLASH-EYE DEFECTS" IEEE TRANSACTIONS ON CONSUMER ELECTRONICS, IEEE SERVICE CENTER, NEW YORK, NY, US, vol. 51, no. 1, February 2005 (2005-02), pages 11-17, XP001240419 ISSN: 0098-3063 abstract section "III. A Practical In-Camera Algorithm", "IV. B. Code Memory Requirements", "IV. C. Execution Time Requirements"</p> <p>-----</p>	1-58

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/EP2006/008358

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2005041121	A1	24-02-2005	NONE

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To:

see form PCT/ISA/220

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY
(PCT Rule 43bis 1)

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION
See paragraph 2 below

International application No
PCT/EP2006/008358

International filing date (day/month/year)
25 08 2006

Priority date (day/month/year)
18.11.2005

International Patent Classification (IPC) or both national classification and IPC
INV G06T7/00 G06T5/10

Applicant
FOTONATION VISION LIMITED

1 This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis 1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2 FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66 1bis(b) that written opinions of this International Searching Authority will not be so considered

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later

For further options, see Form PCT/ISA/220

3 For further details, see notes to Form PCT/ISA/220

Name and mailing address of the ISA:



European Patent Office
D-80298 Munich
Tel +49 89 2399 - 0 Tx: 523556 epmu d
Fax: +49 89 2399 - 4465

Date of completion of
this opinion

see form
PCT/ISA/210

Authorized Officer

Eckert, Lars

Telephone No +49 89 2399-7631



**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No
PCT/EP2006/008358

Box No. I Basis of the opinion

- 1 With regard to the **language**, this opinion has been established on the basis of:
 - ☒ the international application in the language in which it was filed
 - ☐ a translation of the international application into , which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23 1 (b))
- 2 With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a type of material:
 - ☐ a sequence listing
 - ☐ table(s) related to the sequence listing
 - b. format of material:
 - ☐ on paper
 - ☐ in electronic form
 - c time of filing/furnishing:
 - ☐ contained in the international application as filed
 - ☐ filed together with the international application in electronic form
 - ☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished
4. Additional comments:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No
PCT/EP2006/008358

Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1 Statement

Novelty (N)	Yes: Claims	4-10,16,17,30,47,57
	No: Claims	1-3,11-15,18-29,31-46,48-56,58
Inventive step (IS)	Yes: Claims	4-10,16,17,30,47,57
	No: Claims	1-3,11-15,18-29,31-46,48-56,58
Industrial applicability (IA)	Yes: Claims	1-58
	No: Claims	

2 Citations and explanations

see separate sheet

Re. point V:

- 1 Reference is made to the following document:

D1: US 2005/041121 A1 (STEINBERG ERAN [US] ET AL) 24 February 2005 cited in the application

There are two claims numbered "46" on file. They will be referred to as claims "46a" and "46b" in the following.

Clarity:

2. The application does not meet the requirements of Article 6 PCT, because claims 1, 7, 11, 12, 14, 16, 18 - 20, 22, 31, 32, 37, 39, 42 and 51 are not clear.
- 2.1. Re. independent claims 1, 31, 37, 39 and dependent claims 14, 16, 22, 32, 42, 51: The following features are unclear in that they merely state the underlying problem in terms of a result to be achieved, but without actually stating how speed optimisation is achieved (Guidelines, 5.35):
- cl. 1, 31, 37, 39: "speed optimized filter" The concept of a minimal set of filters from p. 5, l. 8 - 23 of the description should have been incorporated into the claims.
 - cl. 14, 16, 32, 42, 51: "analysis-optimised filter" / "analysis-optimized filter". The concept of analysis at a higher resolution from p. 6, l. 11 - 18 of the description should have been incorporated into the claims for clarification.
 - cl. 22: optimisation "for accuracy" The concept of analysis at a higher resolution from p. 6, l. 11 - 18 of the description should have been incorporated into the claims for clarification.
- 2.2. Re. dependent claims 7, 11, 12 and 20: The following features lack antecedents.
- claims 7, 12: "image compressor"
 - claim 11: "said display"
 - claim 20: "said image display"

- 2.3 Re. dependent claim 14: It is obscure what activation of a filter should mean. This feature could be understood as mere software initialisation of such a filter up to its actual application to predetermined data.
- 2.4. Re. dependent claim 18: "[C]orrect[ing] an acquired image[]" merely states the underlying problem in terms of a result to be achieved without defining how that result (correction) should actually be achieved (Guidelines, 5.35). The teachings of the description, p. 6, l. 28 - 30 (modification of pixels) should have been incorporated into the claim
- 2.5. Re. dependent claim 19: The claim leaves obscure what a "*relatively* high resolution" should be, i.e. how fine it actually needs to be to fall into the claim's scope. The description does not elucidate this matter either.

Novelty:

3. The present application does not meet the requirements of Article 33(2) PCT, because the subject matter of claims 1 - 3, 11 - 15, 18 - 29, 31 - 46b, 48 - 56, 58 is not new.
- 3.1. Re. independent claims 1, 31, 37 and 38: Document **D1** discloses (references in parentheses refer to this document):
"A [...] device comprising:
[...] an imaging optic and detector for acquiring an image (abstract; par. [0029]);
[...] a first speed optimized filter for producing a first set of candidate red-eye regions [...] (par. [0012]);
an image encoder [...] (par. [0006]);
an image store memory for storing therein said encoded image in association with said first set of candidate red-eye regions for later image processing [...] (par.s [0006], [0029], [0072])."
This is the exact (shortened) wording of independent device claim 1. The same reasoning applies mutatis mutandis to corresponding independent method and computer program product claims 37 and 38, respectively, and to independent device claim 31 which comprises only a subset of the features of claim 1 (see below).

3.2. Re. independent claim 39: Document **D1** discloses:

"A [...] device, comprising:

[...] an imaging optic and detector for acquiring an image including one or more preview images and a main image (abstract; par. [0029]);

[...] a processor (fig. 1; par. [0029]);

[...] a face detector [...] to analyze the one or more preview images [...] (par. [0029]);

[...] an image generating module [...] to generate a sub-sampled version of the main image (abstract; par. [0010]);

and [...] a first speed-optimized red-eye filter [...] to produce a set of candidate red-eye regions [...] (par. [0012])."

3.3. Re. independent claims 48 and 58: Document **D1** discloses:

"A processor-based method [...] based on program instructions embedded within a digital memory (par.s [0006], [0029]), the method comprising:

[...] acquiring one or more preview images (par. [0029]);

[...] analyzing [...] to ascertain information relating to candidate face regions therein (par. [0029]);

[...] acquiring a main image (abstract; par. [0029]);

[...] analyzing a sub-sampled version of the main image (abstract; par. [0010])

[...] producing a first set of candidate red-eye regions [...] (par.s [0010], [0012], [0070])."

This is the exact (shortened) wording of independent program claim 48. The same reasoning applies mutatis mutandis to corresponding independent computer program product claim 58.

3.4. Re. dependent claims 2, 3, 11 - 15, 18 - 29, 32 - 36, 40 - 46b and 49 - 56: The following additional features are also disclosed in document **D1**.

- claim 2: low resolution version (abstract, par. [0010])
- claims 3, 29, 46b, 56: sub-sampled version (abstract; par. [0010])
- claim 11: correct before display (par.s [0006], [0014])
- claim 12: correct before encoding (par.s [0014], [0029])
- claim 12: store indication of a region (par. [0072])
- claim 13: acquire image after display (par. [0029])

- claim 14: second filter after display (par.s [0006], [0029], [0059])
- claims 15, 32, 42: second analysis-optimised filter for second set of candidate regions (par. [0059])
- claim 18: correct image based on both sets of candidate regions (par s [0014], [0059])
- claim 19: second analysis filter in playback module (par. [0006])
- claim 20: playback device integrated with acquisition device (par. [0006])
- claim 21: remote playback device (par. [0006])
- claim 21: communicate compressed image and first set of candidate regions to remote device (par. [0031])
- claim 22: filter optimised for accuracy (par. [0059])
- claims 23, 35, 44: compressor (par. [0006])
- claims 24, 34, 43: display (par.s [0006], [0029])
- claims 25, 36, 45, 54: PC or microprocessor (par. [0006])
- claim 26: store at least one preview image (par. [0029])
- claim 27: candidate face regions from preview image (par. [0029])
- claims 28, 46a, 55: search and track face regions (par. [0029])
- claims 33, 41, 42, 50: store encoded image with first set of candidate red-eye regions (par.s [0006], [0029], [0072])
- claims 40, 49: encode acquired image (par. [0006])
- claim 51: process full resolution version with analysis-optimized red-eye filter based only in part on information from previous analyzing (par.s [0030], [0059])
- claim 52: store corrected image (par. [0030])
- claim 53: display analyzed image (par.s [0006], [0012])
- claim 54: transfer analysis information as well (par.s [0006], [0031], [0072])

Further remarks:

4. Under Article 6 PCT in combination with the Guidelines, 5.13, 5.14 and 5.42, an application should generally not contain more than one independent claim in a particular category, whereas claims 1, 31 and 39 have been drafted as separate independent device claims. Since claim 1 furthermore contains all features of claim 31, claim 1 should have been reformulated as a claim dependent on claim 31, cf. Rule 6.4(a) PCT and the Guidelines, 5.15.

5. Neither the acknowledgement of **D1** under Rule 5.1(a)(ii) PCT, nor the technical problem as indicated on pp. 1 - 3 is appropriate in view of the above novelty objections.